

To: Stuart Ellsworth - DNR[stuart.ellsworth@state.co.us]

Cc: David Andrews - DNR[david.andrews@state.co.us];

Ex. 6 - Personal Privacy

From: Pfeiffer, Tricia

Sent: Thur 1/5/2017 11:35:53 PM

Subject: RE: FW: Request for EPA Evaluation

Hey Stuart,

Hope you had a great holiday. Good here—excited for the snow and good skiing!!

Just wanted to follow up on the email below, I was typing up our discussion notes and have that the Schwartz 2-15B initially had a pressure of 82 psi that blew down within a minute and in totally that (7) bradenhead tests were performed during the cementing process, with the last 2 tests having 2 & 5 psi that blew down within 10 seconds. From our discussions, it sounds like there is great confidence that the well has been P&A'd successfully but COGCC is still waiting to receive some documentation from the 3rd party contractor.

Also wondering if you have had a chance to inquire about monitoring the other wells on the pad during the P&A process? I would be curious to know if those wells experienced or are experiencing any additional pressure as result of the Schwartz P&A.

-t

From: Stuart Ellsworth - DNR [mailto:stuart.ellsworth@state.co.us]

Sent: Tuesday, January 3, 2017 3:50 PM

To: **Ex. 6 - Personal Privacy**

Cc: David Andrews - DNR <david.andrews@state.co.us>; Pfeiffer, Tricia <Pfeiffer.Tricia@epa.gov>

Subject: FW: FW: Request for EPA Evaluation

Ms. Bracken,

These are the questions that I could pull out of your email.

Is there a way to test well bore and casing integrity prior to any of the noted wells being plugged and abandoned? Yes, a Bradenhead test provides an indication of well bore integrity.

If so, Stuart, is it being required by the COGCC?

COGCC required the operator to conduct a Bradenhead test prior to plugging and abandoning the Schwartz 2-15B, and to report the test results. If pressure or fluids were present during the Bradenhead test, Commission engineering staff would have required modifications to the abandonment procedure.

Is there a way to confirm zone isolation, given the potential for faults and fissures to remain unsealed and interfere with a well confirmation that is now and is likely to be more so in the future compromised by age or continued, deeper operations?

Commission staff was on site to observe the abandonment. Further, we will be reviewing the plugging documentation and details with the Encana submitted Form 6, Report of Subsequent Abandonment, which will contain the supporting data such as contractor cement and plugging tickets.

I'm hoping for some measure of assurance that the wells are indeed sealed, will remain so; and, that appropriate water, air, soil and industrial infrastructure monitoring will help qualify and quantify any such assurances.

Encana has continued to monitor the groundwater monitoring wells for BTEX and Methane on a quarterly basis. Additionally, field parameters have included temperature, specific conductance, dissolved oxygen, and oxygen reduction potential (ORP). As part of the monitoring, Encana also walks West Divide Creek noting and documenting any observations made. The monitoring and sampling will continue until Encana demonstrates compliance with Table 910-1. Should visual monitoring and observations of the surface water features indicate anomalies, the monitoring and sampling frequency of the groundwater monitoring wells shall be evaluated. COGCC has also conducted a site walk of West Divide Creek after the PA of the Schwartz 2-15B. A copy of that inspection is attached.

Thank You,

Stuart

303-894-2100 x5108

From: L Bracken; Ex. 6 - Personal Privacy
Sent: Wednesday, December 14, 2016 1:44 PM
To: 'Pfeiffer, Tricia'; stuart.ellsworth@state.co.us
Cc: 'David Andrews - DNR'
Subject: RE: FW: Request for EPA Evaluation

Tricia and Stuart,

I've been thinking more about the plugging of the 2-15B...

Pursuit of the Mancos Shales was recently announced at the Rifle Energy Advisory Board meeting.

I am speculating here to a degree, but I visualize a scenario where this region (touted by EnCana early on as a rich, heavily pressurized and near surface source of natural gas) could face a second, geologically deeper phase of exploration and recovery of resource.

Despite findings by the COGCC, Garfield County and others, I contend that the hydro-geologic matrix of this watershed, anticline, outcrop has been weakened and perhaps even shattered to a depth of at least 7,000 feet due to oil and gas operations beginning in 2003. Wells involved in this dynamic include (based on observed and, in some cases, documented events): Arbaney, Schwartz, Brown, Twin Creeks and Juniper Group.

I suspect (and only suspect) that in the interest of economic pursuit of deeper shale resources, these and other wells drilled into the Mamm Field from 2003 to 2015 – especially the problematic wells noted above, may also face plugging and abandonment – perhaps in order to better contain fugitive nuisance gas from a next-phase production effort.

While I am certainly not qualified to assess the risk of that effort, it comes to mind that effective plugging (and hopefully, isolation) of noted wells could involve attempting to seal faults and fissures created or

exacerbated in the last decade by oil and gas operations which have led to a number of Notices To Operators.

That's the scenario, and I could be way off I know. I am not informed on any level by anyone of EnCana's or others' plans to develop the area. I'd rather not have to guess about these things; but, I am considering past patterns of exploitation and effect... certainly, the Mancos sounds like an attractive resource for many.

Is there a way to test well bore and casing integrity prior to any of the noted wells being plugged and abandoned? If so, Stuart, is it being required by the COGCC?

Is there a way to confirm zone isolation, given the potential for faults and fissures to remain unsealed and interfere with a well confirmation that is now and is likely to be more so in the future compromised by age or continued, deeper operations?

I'm hoping for some measure of assurance that the wells are indeed sealed, will remain so; and, that appropriate water, air, soil and industrial infrastructure monitoring will help qualify and quantify any such assurances.

Thanks Tricia and Stuart. Any insight would continue to be very appreciated.

Lisa Bracken

From: Pfeiffer, Tricia [mailto:Pfeiffer.Tricia@epa.gov]
Sent: Tuesday, December 13, 2016 1:57 PM
To: stuart.ellsworth@state.co.us; **Ex. 6 - Personal Privacy**
Cc: David Andrews - DNR
Subject: RE: FW: Request for EPA Evaluation
Importance: High

Thanks Stuart for the information. When EnCana performed the bradenhead test, did they follow the procedure per NTO:

http://cogcc.state.co.us/documents/reg/Policies/NTO_07082010.pdf that requires a (7) day shut in prior to the test? The latest bradenhead data on COGCC's website:
<http://cogcc.state.co.us/documents/library/AreaReports/PiceanceBasin/WaterQuality/BMA.html> is for 2013. I reviewed the data and it states that on 10/13/13: fluid type=gas, 7 day build up=

55 psi, blow down= 4 (no units cited); surface csg= 706 ft bgs. I reviewed COGCC website (<http://cogcc.state.co.us/data.html#/cogis>) and looks like the top of cement is listed at 2300 ft bgs—is that correct?

--t

Tricia Pfeiffer, Environmental Engineer

USEPA, R8 Aquifer and Aquatic Resource Protection Unit

Office: [\(303\) 312-6271](tel:3033126271)

From: Stuart Ellsworth - DNR [<mailto:stuart.ellsworth@state.co.us>]

Sent: Friday, December 09, 2016 4:51 PM

To: Pfeiffer, Tricia <Pfeiffer.Tricia@epa.gov>; Ex. 6 - Personal Privacy

Cc: David Andrews - DNR <david.andrews@state.co.us>

Subject: RE: FW: Request for EPA Evaluation

Ms. Pfeiffer and Ms. Bracken:

Thank you for your inquiry regarding the status of the SCHWARTZ 2-15B, API# 045-09306 well abandonment.

Encana Oil & Gas (USA) Inc. submitted COGCC Form 6, Notice of Intent to Abandon the SCHWARTZ 2-15B, API# 045-09306 (Document # 401132849).

The reason on the Intent to Abandon was due to the well having "Production Sub-economic."

The request was received at the Commission on October 19th, 2016. Commission staff reviewed and approved the Form 6, Notice of Intent to Abandon on November 2, 2016. Staff placed the following 3 conditions of approval on the Intent to Abandon:

1) Prior to initiation of plugging operations, a bradenhead test shall be performed. If any pressure remains at the conclusion of the test or any liquids were present call COGCC Engineer for sampling requirements and changes to the plugging procedure. Form 17 shall be submitted within 10 days of the test.

2) Provide 48 hour notice of plugging MIRU (move in rig up) via electronic Form 42.

3) Properly abandon flowlines per Rule 1103. File electronic Form 42 when flowline abandonment is complete.

- Encana did perform the Bradenhead Test on November 7th and submitted the Form 17 Bradenhead Test Report, document #401144807. The test was witness by commission staff as noted in Field Inspection Form, document #666802713. No fluids were observed to be flowing from the bradenhead valve during the test and no pressure was observed.
- Encana did submit the Form 42 Field Operation Notice for Abandonment on November 9th for a November 14th schedule of work.
- Commission staff were on sight to observe the abandonment on November 14th and 15th as noted in Field Inspection Forms #666802745 and #674300779.

Please note that the commission does have additional regulation requirements and expectations of Encana related to this well abandonment.

1. After a well is abandon the commission requires an operator to submit a Form 6 Subsequent Report of Abandonment to confirm proper abandonment, which is to include support data for how the well was abandoned.
2. There will also be follow up inspections by the Environmental and Reclamation Groups as Encana progress with the abandonment.

I hope this provides you with an understanding of the recent activity at the SCHWARTZ 2-15B.

If there are additional questions, feel free to call.

Thank you and Regards,

Stuart M. Ellsworth, P.E.

Engineering Manager

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From: Andrews - DNR, David [<mailto:david.andrews@state.co.us>]

Sent: Friday, December 09, 2016 2:15 PM

To: Ellsworth, Stuart

Subject: Fwd: FW: Request for EPA Evaluation

----- Forwarded message -----

From: Pfeiffer, Tricia <Pfeiffer.Tricia@epa.gov>

Date: Fri, Dec 9, 2016 at 8:51 AM

Subject: FW: Request for EPA Evaluation

To: David Andrews - DNR <david.andrews@state.co.us>

Cc: **Ex. 6 - Personal Privacy**

David,

Can you answer Ms. Bracken's questions below about the recent activity on the Schwartz pad? I don't believe it can be looked up in the COGCC database given it's currently in process.

Thanks,

Tricia

Tricia Pfeiffer, Environmental Engineer
USEPA, R8 Aquifer and Aquatic Resource Protection Unit
Office: (303) 312-6271

-----Original Message-----

From: L Bracken **Ex. 6 - Personal Privacy**
Sent: Thursday, December 08, 2016 4:45 PM
To: Pfeiffer, Tricia <Pfeiffer.Tricia@epa.gov>
Subject: RE: Request for EPA Evaluation

Tricia and team;

I've noted recent pad activity (mid Nov to early Dec, 2016) on the first Schwartz pad excavated here in the Mamm Field, that seems to have involved the use of pulleys on drill stems.

I am wondering if this activity is in any way related to the on-going review/evaluation (similar to that of Miller) which I requested in December of 2013 and which was subsequently initiated by the EPA and collaboratively analyzed by the COGCC.

Please recall, the request for the evaluation was an outgrowth of my concern for observable impacts relative to the 2004 and 2008 seeps which occurred during drilling/fracing operations associated with a number of specific wells in this area.

I have reviewed the COGCC's You Tube video and presentation:
<https://www.youtube.com/watch?v=XnYfzW0Rhes> associated with my request for evaluation.

While it seems that my request for evaluation has been useful in encouraging a multi agency review -- the video presentation noted above appears to fail to account for potential operational implications from the wells specific to my concerns noted above (that is relevant: Twin Creeks, Price, Schwartz, and, Brown wells).

While I truly appreciate the extended and collaborative nature of a multi-agency review, I am requesting, once again, a complete copy of the actual evaluation conducted by the EPA and specific to the EPA's considerations arising from my request. Given the welcome and broad potential for any such evaluation to invite and support interpretive differences, please include any lab/bench/field notes that may lend a greater understanding in my interpretation of the EPA's perspective on the EPA's evaluation.

Thank you, Lisa Bracken

-----Original Message-----

From: Pfeiffer, Tricia [mailto:Pfeiffer.Tricia@epa.gov]

Sent: Wednesday, December 11, 2013 3:28 PM
To: L Bracken
Cc: Andrews - DNR, David; Oberley, Gregory; Alex Fischer - DNR
Subject: RE: Request for EPA Evaluation
Importance: High

Lisa,

I have attached the spreadsheet provided to COGCC that contains the analysis conducted by EPA that I believe the slides are referencing. Please call me if you have any questions and I will explain what was done.

Tricia Pfeiffer
Environmental Engineer
US EPA Region 8 Watershed & Aquifer Protection Unit
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-----Original Message-----

From: L Bracken Ex. 6 - Personal Privacy
Sent: Wednesday, December 11, 2013 2:41 PM
To: Pfeiffer, Tricia
Subject: Request for EPA Evaluation

Tricia,

Can you please send me any references or review work the EPA has conducted relative to the COGCC's work on West Divide Creek?

I came across this reference (below) in the COGCC presentation library (could not extract pages to include for reference - but please see slides 34 and 35 specifically), and it would be helpful to have the referenced review in correlating incoming data, especially relative to Garfield County's

Phase III conclusions.

Thanks for any assistance you may be able to offer.

Lisa Bracken

http://cogcc.state.co.us/Library/PiceanceBasin/EastMammCreek/NW_Cmt_BH_Practices_COGCC20110919.pdf